

JC20 Rec'd PCT/PTO 27 JUN 2005

gag ctg ccg agc ctg cag tcg ctg cgc cta gat gcc aac ctc atc tcc 343
Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn Leu Ile Ser
85 90 95

ctg gtc ccg gag agg agc ttt gag ggg ctg tcc tcc ctc cgc cac ctc	391
Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu Arg His Leu	
100 105 110 115	
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Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg Ala Leu Asn	
120 125 130	
aac ctc cct gcc ctg cag gcc atg acc ctg gcc ctc aac cgc atc agc	487
Asn Leu Pro Ala Leu Gln Ala Met Thr Leu Ala Leu Asn Arg Ile Ser	
135 140 145	
cac atc ccc gac tac gcg ttc cag aat ctc acc agc ctt gtg gtg ctg	535
His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu Val Val Leu	
150 155 160	
cat ttg cat aac aac cgc atc cag cat ctg ggg acc cac agc ttc gag	583
His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His Ser Phe Glu	
165 170 175	
ggg ctg cac aat ctg gag aca cta gac ctg aat tat aac aag ctg cag	631
Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn Lys Leu Gln	
180 185 190 195	
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Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln Glu Leu Gly	
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Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe Met Gly	
215 220 225	
aac cct ctg cta cag acg ata cac ttt tat gat aac cca atc cag ttt	775
Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro Ile Gln Phe	
230 235 240	
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Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His Thr Leu Ser	
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ctg aat ggt gcc atg gac atc cag gag ttt cca gat ctc aaa ggc acc	871
Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu Lys Gly Thr	
260 265 270 275	
acc agc ctg gag atc ctg acc ctg acc cgc gca ggc atc cgg ctg ctc	919
Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile Arg Leu Leu	
280 285 290	
cca tcg ggg atg tgc caa cag ctg ccc agg ctc cga gtc ctg gaa ctg	967
Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val Leu Glu Leu	
295 300 305	
tct cac aat caa att gag gag ctg ccc agc ctg cac agg tgt cag aaa	1015
Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg Cys Gln Lys	
310 315 320	
ttg gag gaa atc ggc ctc caa cac aac cgc atc tgg gaa att gga gct	1063

Leu	Glu	Glu	Ile	Gly	Leu	Gln	His	Asn	Arg	Ile	Trp	Glu	Ile	Gly	Ala		
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Asp	Thr	Phe	Ser	Gln	Leu	Ser	Ser	Leu	Gln	Ala	Leu	Asp	Leu	Ser	Trp		
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aac	gcc	atc	cgg	tcc	atc	cac	ccc	gag	gcc	ttc	tcc	acc	ctg	cac	tcc	1159	
Asn	Ala	Ile	Arg	Ser	Ile	His	Pro	Glu	Ala	Phe	Ser	Thr	Leu	His	Ser		
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Ala	Gly	Leu	Gly	Gly	Leu	Met	His	Leu	Lys	Leu	Lys	Gly	Asn	Leu	Ala		
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gac	tca	aag	cca	cac	ccc	agt	gtc	cag	tgt	agc	cct	act	cca	ggc	ccc	1543	
Asp	Ser	Lys	Pro	His	Pro	Ser	Val	Gln	Cys	Ser	Pro	Thr	Pro	Gly	Pro		
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Phe	Lys	Pro	Cys	Glu	Tyr	Leu	Phe	Glu	Ser	Trp	Gly	Ile	Arg	Leu	Ala		
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Val	Trp	Ala	Ile	Val	Leu	Leu	Ser	Val	Leu	Cys	Asn	Gly	Leu	Val	Leu		
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ctg gca gta ctt ggg tgc gag gca tgc gtg ctg ctg ctc act ctg gcc Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala 600			1879
gca gtg cag tgc agc gtc tcc gtc tcc tgt gtc cgg gcc tat ggg aag Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys 615			1927
tcc ccc tcc ctg ggc agc gtt cga gca ggg gtc cta ggc tgc ctg gca Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala 630			1975
ctg gca ggg ctg gcc gcc gcg ctg ccc ctg gcc tca gtg gga gaa tac Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr 645			2023
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gcc tgg ctc atc ttc gca gac ggg ctc ctc tac tgt ccc gtg gcc ttc Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe 725			2263
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cca ctg ctg tac ctg ctc ttc aac ccc cac ttc cgg gat gac ctt cgg Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg 775			2407

cgg ctt cgg ccc cgc gca ggg gac tca ggg ccc cta gcc tat gct gcg Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala 790 795 800	2455
gcc ggg gag ctg gag aag agc tcc tgt gat tct acc cag gcc ctg gta Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val 805 810 815	2503
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cca gag ggg aac cac ttt ggg aac ccc caa ccc tcc atg gat gga gaa Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu 870 875 880	2695
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35 40 45

His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu
50 55 60

Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu
65 70 75 80

Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn
85 90 95

Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu
100 105 110

Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg
115 120 125

Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr Leu Ala Leu Asn
130 135 140

Arg Ile Ser His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu
145 150 155 160

Val Val Leu His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His
165 170 175

Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn
180 185 190

Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln
195 200 205

Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala
210 215 220

Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro
225 230 235 240

Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His
245 250 255

Thr Leu Ser Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu
260 265 270

Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile
275 280 285

Arg Leu Leu Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val
290 295 300

Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg
305 310 315 320

Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu
325 330 335

Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp
340 345 350

Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr
355 360 365

Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr
370 375 380

Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly
385 390 395 400

Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu
405 410 415

Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met
420 425 430

Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu
435 440 445

His Leu Asp Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala
450 455 460

Arg Gln Ala Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu
465 470 475 480

Glu Met Glu Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr
485 490 495

Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile
500 505 510

Arg Leu Ala Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly
515 520 525

Leu Val Leu Leu Thr Val Phe Ala Gly Gly Pro Val Pro Leu Pro Pro
530 535 540

Val Lys Phe Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly
545 550 555 560

Ile Ser Cys Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln
565 570 575

Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala
580 585 590

Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu
595 600 605

Thr Leu Ala Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala
610 615 620

Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly
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Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val
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Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu
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Gly Gln Pro Ala Ala Leu Gly Phe Thr Val Ala Leu Val Met Met Asn

675	680	685
Ser Phe Cys Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys		
690	695	700
Asp Leu Pro Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val		
705	710	715
Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro		
725	730	735
Val Ala Phe Leu Ser Phe Ala Ser Met Leu Gly Leu Phe Pro Val Thr		
740	745	750
Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala		
755	760	765
Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp		
770	775	780
Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala		
785	790	795
Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln		
805	810	815
Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu		
820	825	830
Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr		
835	840	845
Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His		
850	855	860
Cys Val Glu Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met		
865	870	875
Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly		
885	890	895
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Ser His Val
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Leu Phe His His Leu Arg Phe Leu Glu Glu Leu Arg Leu Ser Gly Asn
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His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu
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Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu
50 55 60

Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn
65 70 75

Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu
80 85 90

Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg
95 100 105

Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr Leu Ala Leu Asn
110 115 120 125

Arg Ile Ser His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu
130 135 140

Val Val Leu His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His
145 150 155

Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn
160 165 170

Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln
175 180 185

Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala
190 195 200 205

Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro
210 215 220

Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His
225 230 235

Thr Leu Ser Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu
240 245 250

Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile
255 260 265

Arg Leu Leu Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val
270 275 280 285

Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg
290 295 300

Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu
305 310 315

Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp
320 325 330

Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr
335 340 345

Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr
350 355 360 365

Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly
370 375 380

Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu
385 390 395

Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met
400 405 410

Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu
415 420 425

His Leu Asp Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala
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Arg Gln Ala Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu
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Glu Met Glu Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr
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Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile
480 485 490

Arg Leu Ala Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly
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Val Lys Phe Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly
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Ile Ser Cys Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln
545 550 555

Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala
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Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu
575 580 585

Thr Leu Ala Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala

590		595		600		605
Tyr Gly Lys Ser	Pro Ser Leu Gly Ser	Val Arg Ala Gly Val	Leu Gly			
	610	615	620			
Cys Leu Ala Leu	Ala Gly Leu Ala	Ala Ala Leu Pro	Leu Ala Ser Val			
	625	630	635			
Gly Glu Tyr Gly	Ala Ser Pro Leu Cys Leu	Pro Tyr Ala Pro	Pro Glu			
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Gly Gln Pro Ala	Ala Leu Gly Phe Thr Val	Ala Leu Val Met Met	Asn			
	655	660	665			
Ser Phe Cys Phe	Leu Val Val Ala Gly Ala	Tyr Ile Lys Leu Tyr	Cys			
	670	675	680	685		
Asp Leu Pro Arg	Gly Asp Phe Glu Ala Val	Trp Asp Cys Ala Met	Val			
	690	695	700			
Arg His Val Ala	Trp Leu Ile Phe Ala Asp Gly	Leu Leu Tyr Cys Pro				
	705	710	715			
Val Ala Phe Leu	Ser Phe Ala Ser Met Leu Gly	Leu Phe Pro Val Thr				
	720	725	730			
Pro Glu Ala Val	Lys Ser Val Leu Leu Val Val	Leu Pro Leu Pro Ala				
	735	740	745			
Cys Leu Asn Pro	Leu Leu Tyr Leu Leu Phe Asn	Pro His Phe Arg Asp				
	750	755	760	765		
Asp Leu Arg Arg	Leu Arg Pro Arg Ala Gly Asp	Ser Gly Pro Leu Ala				
	770	775	780			
Tyr Ala Ala Ala	Gly Glu Leu Glu Lys Ser Ser	Cys Asp Ser Thr Gln				
	785	790	795			
Ala Leu Val Ala	Phe Ser Asp Val Asp Leu Ile Leu	Glu Ala Ser Glu				
	800	805	810			
Ala Gly Arg Pro	Pro Gly Leu Glu Thr Tyr Gly	Phe Pro Ser Val Thr				
	815	820	825			

Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His
830 835 840 845

Cys Val Glu Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met
850 855 860

Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly
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Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala
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Ser His Val
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Pro Arg Leu Thr Leu Val Cys Gln Val Ser Ile Ile Ile Ser Ala Arg
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Asp Leu Ser Met Asn Asn Leu Thr Glu Leu Gln Pro Gly Leu Phe His
20 25 30 35

cac ctg cgc ttc ttg gag gag ctg cgt ctc tct ggg aac cat ctc tca 199
His Leu Arg Phe Leu Glu Glu Leu Arg Leu Ser Gly Asn His Leu Ser
40 45 50

cac atc cca gga caa gca ttc tct ggt ctc tac agc ctg aaa atc ctg 247
His Ile Pro Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu Lys Ile Leu
55 60 65

atg ctg cag aac aat cag ctg gga gga atc ccc gca gag gcg ctg tgg 295
Met Leu Gln Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu Ala Leu Trp
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Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn Lys Leu Gln	
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